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**CONESTOGA-ROVERS
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November 13, 2013

Reference No. 038443

Ms. Leslie Patterson
Remedial Project Manager
United States Environmental Protection Agency
Region V
77 West Jackson Boulevard
Mail Code SR-6J
Chicago, Illinois 60604

Dear Ms. Patterson:

Re: Wetland Delineation Report
South Dayton Dump and Landfill Site
City of Dayton, Montgomery County, Ohio

Conestoga-Rovers & Associates (CRA) completed a wetland delineation and assessment at the South Dayton Dump and Landfill Site (Site) in accordance with the Phase 1A Groundwater and Data Gap Investigation Work Plan dated May 10, 2013.

This report discusses the wetland delineation methodology and provides the results of CRA's field investigation. It includes copies of the United States Geologic Survey (USGS) topographic map (Figure 1), a recent aerial photograph (Figure 2), the Natural Resources Conservation Service (NRCS) web soil survey map (Figure 3), and the National Wetland Inventory (NWI) map each showing the location of the Site. The surveyed limits of the wetlands identified within the project area are shown on the Wetland Location Plan provided in Attachment A. Completed copies of the U.S. Army Corps of Engineers (COE) data forms referenced in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* are provided in Attachment B. Attachment C contains completed copies of the Ohio Rapid Assessment Method for Wetlands (ORAM 5.0) forms. Attachment D contains color photographs of the wetlands identified during the delineation, as well as typical uplands identified on the Site.

1.0 REGULATORY FRAMEWORK AND STUDY METHODOLOGY

In Ohio, wetlands and waterways that are determined to be Waters of the U.S. are regulated at the federal level by the COE under Section 404 of the Clean Water Act. Wetlands and waterways that are determined to be isolated are regulated at the state level by the Ohio Environmental Protection Agency (OEPA).

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**CONESTOGA-ROVERS
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November 13, 2013

Reference No. 038443

- 2 -

CRA completed the wetland delineation for the Site on July 22 and 23, 2013 using the Routine Onsite Determination Method in the *Corps 1987 Wetland Delineation Manual* and the subsequent *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* guidance on field indicators. According to this methodology, wetlands are identified by the presence of three parameters: the dominance of hydrophytic vegetation, the presence of hydric soils, and positive indicators of wetland hydrology. Typically, all three parameters must be present for an area to be considered a jurisdictional wetland(s). However, in areas where one or more of the wetland parameters have been significantly disturbed and were deemed unreliable (e.g., mowed lawn areas, filled areas, etc.), the remaining parameters and best professional judgment were used to delineate the extent of jurisdictional wetlands.

Secondary sources of data for the Site, including the USGS topographic map, aerial photograph, NRCS soil survey, and NWI were reviewed prior to conducting the field investigation. These secondary sources of data are often useful in identifying areas that may contain wetlands based on topography, drainage ways, vegetation, and soil type.

Following the review of the secondary sources of data, wetland scientists from CRA inspected the Site and delineated the wetland and waterway boundaries based on the COE methods. The boundaries between wetlands and uplands were flagged in the field by CRA and surveyed by a land surveyor. The boundaries of parts of the "Quarry Pond", a large, flooded, abandoned quarry pit in the southern portion of the Site, were not flagged due to the presence of a sheer vertical bank of varying heights which made the flagging of these boundaries impractical / unsafe. In these cases, the wetland / waterbody boundary was determined based on the normal water elevation in the Quarry Pond from Site surveyed topographic data and on-Site confirmatory observations.

CRA conducted a wetland functional assessment of the isolated wetlands on the Site using the Ohio Rapid Assessment Method for Wetlands (ORAM 5.0). Data on the chemical, physical and biological characteristics of the wetlands were collected and assessed using the ORAM methods and CRA assigned each isolated wetland delineated a Wetland Category (Category 1, 2, or 3) based on the scoring scale in ORAM 5.0.

2.0 REVIEW OF SECONDARY DATA

Figure 1 shows the location of the Site on a portion of the South Dayton, OH USGS topographic quadrangle. As shown on the USGS topographic map provided as Figure 1, the Site is approximately 80 acres and is located west of the intersection of Dryden Road and East River



**CONESTOGA-ROVERS
& ASSOCIATES**

November 13, 2013

Reference No. 038443

- 3 -

Road; near the Great Miami River. The site is separated from the Great Miami River by 350 feet of flat open land, the Great Miami River Recreation Trail, and a large man-made dyke.

Three isolated topographic depressions occur on the Site that contain ponded water and are referred to as the Small Pond, Large Pond, and Quarry Pond. Figure 2 shows the various parcels associated with the Site and the general location of the Small Pond, Large Pond, and Quarry Pond within the Site boundaries.

An aerial photograph from the NRCS Web Soil Survey (figure 3) shows that the Site is bordered by the Great Miami River to the north and west, Dryden Road to the east, and businesses and residences along East River Road to the south. The Site is currently characterized by areas of dense vegetation in various states of succession on waste and fill material.

As shown on Figure 3, the following soil types are mapped as occurring on the Site:

- FmA: Fox silt loam; 0 to 2 percent slopes; well drained; not hydric
- FuB: Fox-Urban land complex; well drained; not hydric
- Gp: Gravel pits; not hydric
- Mb: Made land; not hydric

The majority of the Site is mapped as Gravel pits. The very northern and eastern portions of the Site are mapped as Fox-Urban land complex soils which are well drained and not hydric. A small portion of the Site between the Gravel pits and Fox-Urban soils is mapped as Made land. The southernmost portion of the Site is mapped as Fox silt loam soils which are well drained and not hydric. The NRCS map does not indicate any hydric soil within the boundaries of the Site.

The NWI Map (Figure 4) identifies two wetlands within the Site boundaries. A large palustrine, unconsolidated bottom, excavated pond (PUBGx) is indicated in the southern portion of the Site and corresponds to the location of the Quarry Pond. A small, palustrine, scrub-shrub wetland (PSS1C) is indicated near the center of the Site and corresponds to the location of the Large Pond. The Small Pond does not appear on the NWI Map.



**CONESTOGA-ROVERS
& ASSOCIATES**

November 13, 2013

Reference No. 038443

- 4 -

3.0 RESULTS OF WETLAND DELINEATION

3.1 AREA A - QUARRY POND

Flags WLA-1 to A-26 on figure A1 in Attachment A delineate a palustrine emergent wetland associated with a seasonally flooded terrace adjoining the northwestern side of the Quarry Pond and a narrow swale that slopes from the central portion of the Site to the Quarry Pond. Due to the height and steepness of the bank of the Quarry Pond on its western, southern, and eastern banks, it was not possible to flag these waterbody boundaries. Therefore, these boundaries were delineated using the average water elevation in the Quarry Pond and were confirmed by field observations. The vegetation in this area was dominated by black willow (*Salix nigra*), purple loosestrife (*Lythrum salicaria*), moneywort (*Lysimachia nummularia*), straw sedge (*Cyperus esculentus*), and poison ivy (*Toxicodendron radicans*). The soil from 0 to 18 inches was observed to be historical fill and consisted of gray silts and sand and gravels. Indicators of wetland hydrology included saturated soil within the upper 12 inches of the soil profile and periodic inundation observed on historical aerial photographs.

Area A is documented on Data Form 8 in Attachment B, on ORAM 5.0 Form 1 in Attachment C, and in the color photographs provided in Attachment D.

3.2 AREA B - SMALL POND

Flags B-1 to B-11 delineate the wetland boundaries of the Small Pond in the south central portion of the Site. The boundary of this wetland is generally abrupt, being bounded by various fill materials on all sides. The vegetation in this area was dominated by poison ivy along the edges, and eastern cottonwood (*Populus deltoides*), black willow, and green ash (*Fraxinus pennsylvanica*) throughout the Small Pond. The soils are highly variable consisting of varying fill materials. They range from very dark gray to brown (10YR 3/2) loam at 0 to 1 inches, to a lighter brown (10 YR 4/1) sandy loam at 1-18 inches, where soil is present. Indications of wetland hydrology included up to 6" of standing water in some places as well as blackened leaves and water marks on trees.

Area B is documented on Data Form 1 in Attachment B, on ORAM 5.0 Form 2 in Attachment C, and in the color photographs provided in Attachment D.



**CONESTOGA-ROVERS
& ASSOCIATES**

November 13, 2013

Reference No. 038443

- 5 -

3.3 AREA C - LARGE POND

Flags C-1 to C-36 delineate the wetland boundaries associated with the Large Pond generally located in the northern portion of the Site. As with Area B, the wetland boundaries are abrupt as Area C occurs in a depression surrounded by wastes. The vegetation in this area was dominated by poison ivy, green ash, American sycamore (*Platanus occidentalis*), eastern cottonwood, and reed canary grass (*Phalaris arundinacea*). The soil was observed to be a very dark brown (10 YR 2/1) soil mixed with wastes. Wetland hydrology indicators in Area C included standing water, saturated soil, and water stained leaves.

Area C is documented on Data Forms 4 and 5 in Attachment B, on ORAM 5.0 Form 3 in Attachment C, and in the color photographs provided in Attachment D.

3.4 UPLANDS

The uplands on the Site consist of a mosaic of herbaceous and shrub - scrub areas, depending on when they were last cleared. The uplands are dominated by poison ivy, crown vetch (*Coronilla varia*), teasel (*Dipsacus sylvestris*), Eastern cottonwood, black locust (*Robinia pseudoacacia*), and bush honeysuckle (*Diervilla lonicera*). Due to previous landfill operations, soil was highly variable in the uplands with colors including various shades of brown (10 YR 3/2, and 10 YR 4/4), and containing a variety of gravel and sandy materials in various places. No indicators of wetland hydrology were observed in the upland portions of the Site at the time of our field investigation.

The uplands on the Site are documented on Data Forms 2, 3, 6, 7, 9, 10, 11, and 13 in Attachment B and in the color photographs provided in Attachment D.

4.0 RESULTS OF OHIO RAPID ASSESSMENT METHOD 5.0

CRA assessed each wetland area in accordance with OEPA methodologies (ORAM 5.0) to determine its State resource value classification. The category of an isolated wetland influences the permitting standards and mitigation requirements under OEPA regulations.

The final scores for Areas A, B, and C were 27.5, 17 and 27.5 respectively. All 3 wetland scores fell into the range for Category 1 wetlands. Category 1 wetlands are generally considered lower quality and typically have minimal or low function and/or integrity. Area B, the Small Pond, had the lowest ORAM score which is consistent with its degraded nature due to the



**CONESTOGA-ROVERS
& ASSOCIATES**

November 13, 2013

Reference No. 038443

- 6 -

surrounding landfill. Area C, also degraded and surrounded by the landfill, had a slightly higher score than Area B due to its larger size, slightly more diverse habitat, and more diverse plant communities. Area A also scored 27.5 with higher scores for hydrology and size, and lower scores for habitat and plant communities. Area A (the Quarry Pond) is bounded by sheer vertical banks on most sides and generally lacks significant areas of wetland along these sheer banks. Overall, the ORAM results for isolated wetlands support the infield observations that the wetlands have a low functional quality due to their location in the middle of a landfill and the past industrial site activities.

5.0 SUMMARY & RECOMMENDATIONS

CRA identified three isolated wetland areas on the Site (Areas A, B, and C) that scored within the range of a Category 1 wetland as defined by OEPA in the ORAM 5.0. The remainder of the Site consists of uplands on varying fill materials. CRA recommends that a Jurisdictional Determination be obtained from the Army Corps of Engineers to verify the boundaries of jurisdictional Waters of the U.S. on the Site and verify the jurisdictional status of the isolated water bodies (ponds).

If you have any questions or require additional information, please call me at (610) 321-1800 ext. 11.

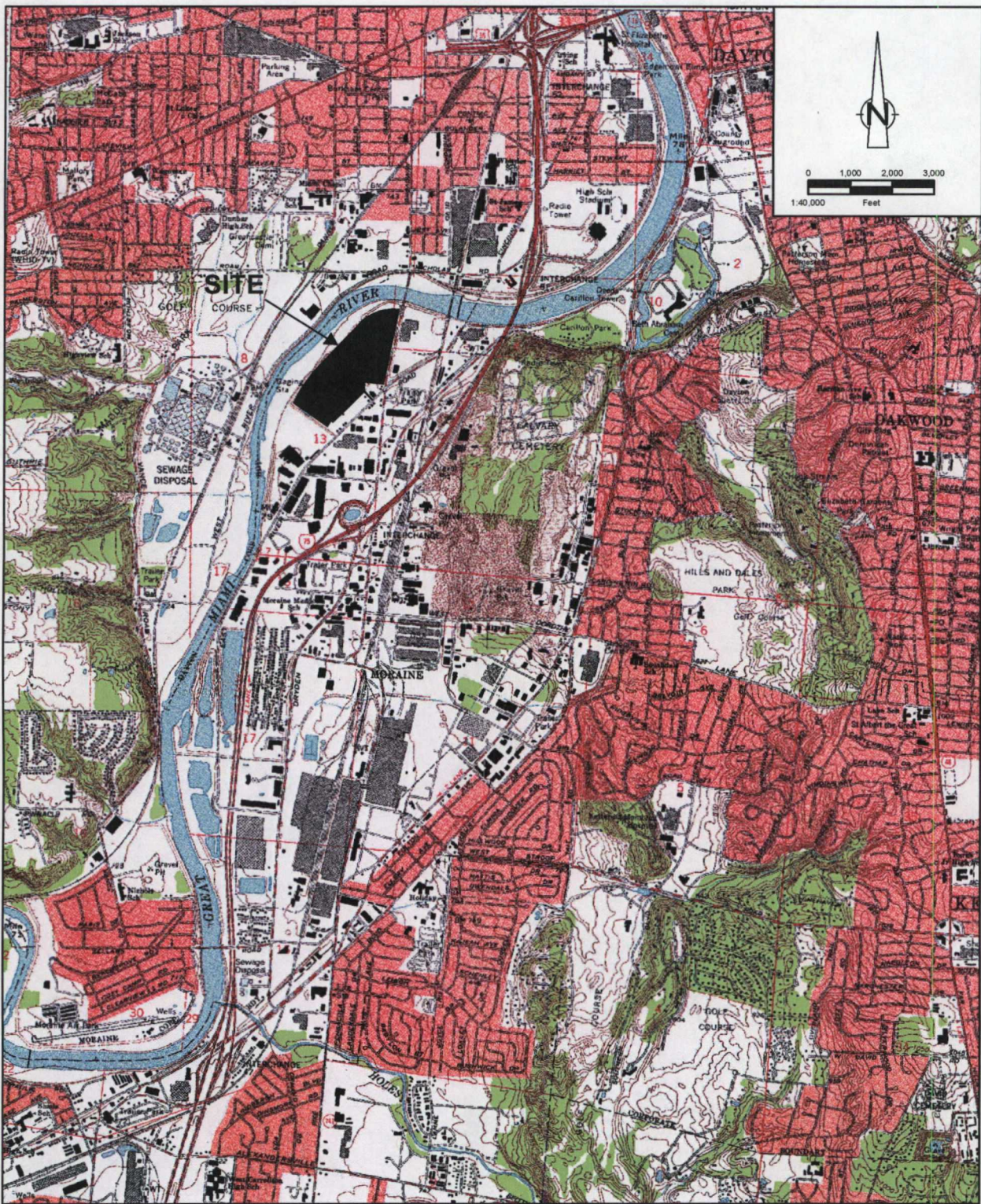
Yours truly,

CONESTOGA ROVERS & ASSOCIATES

Scott E. Bush, P.W.S.
Senior Ecologist

SEB/smk/1
Encl.

FIGURES



Base Data: Dayton South USGS Quad Image Datum: NAD 83 Projection: Ohio State Plane South

figure 1

SITE LOCATION MAP
SOUTH DAYTON DUMP AND LANDFILL SITE
 Moraine, Ohio



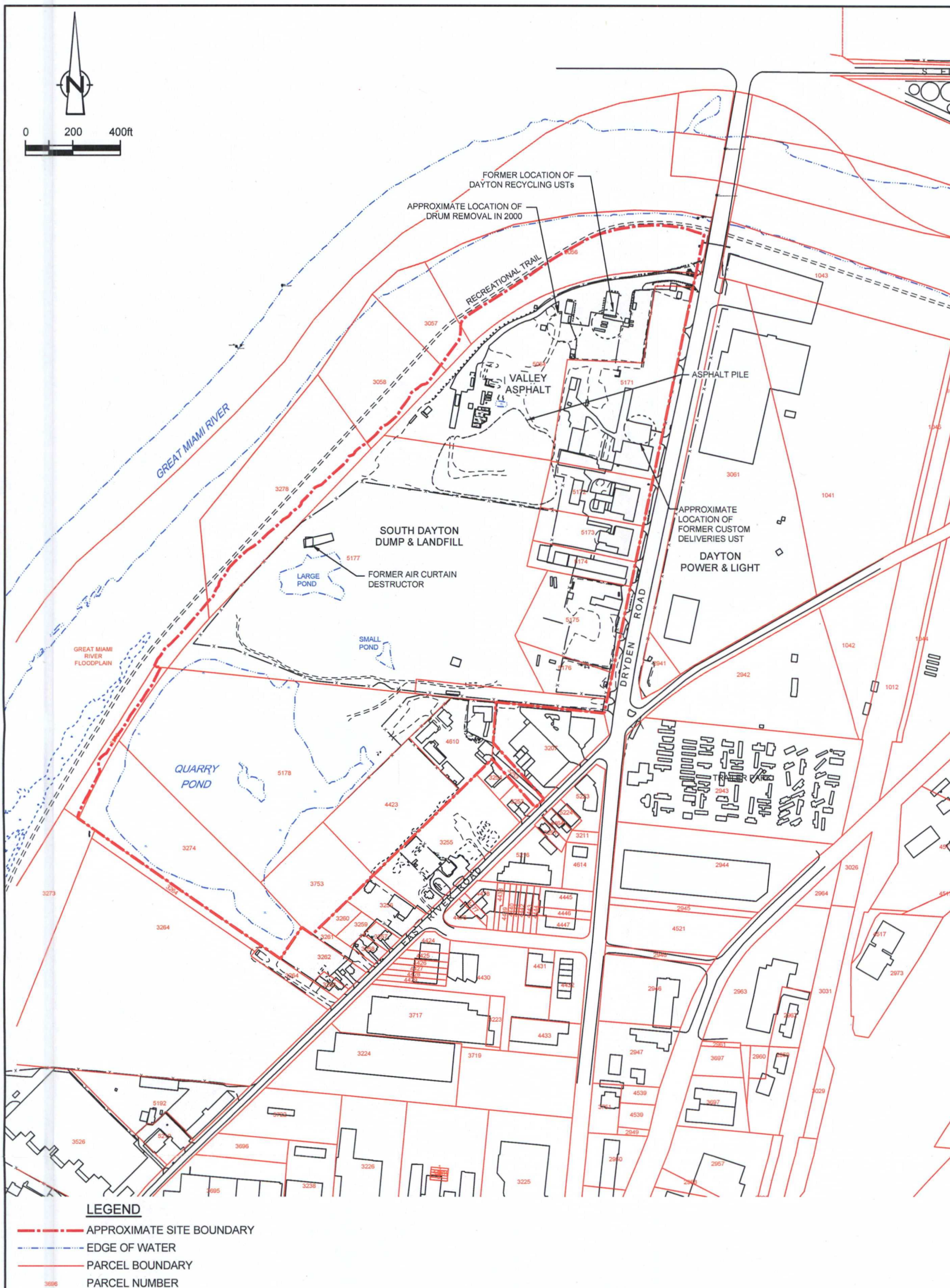
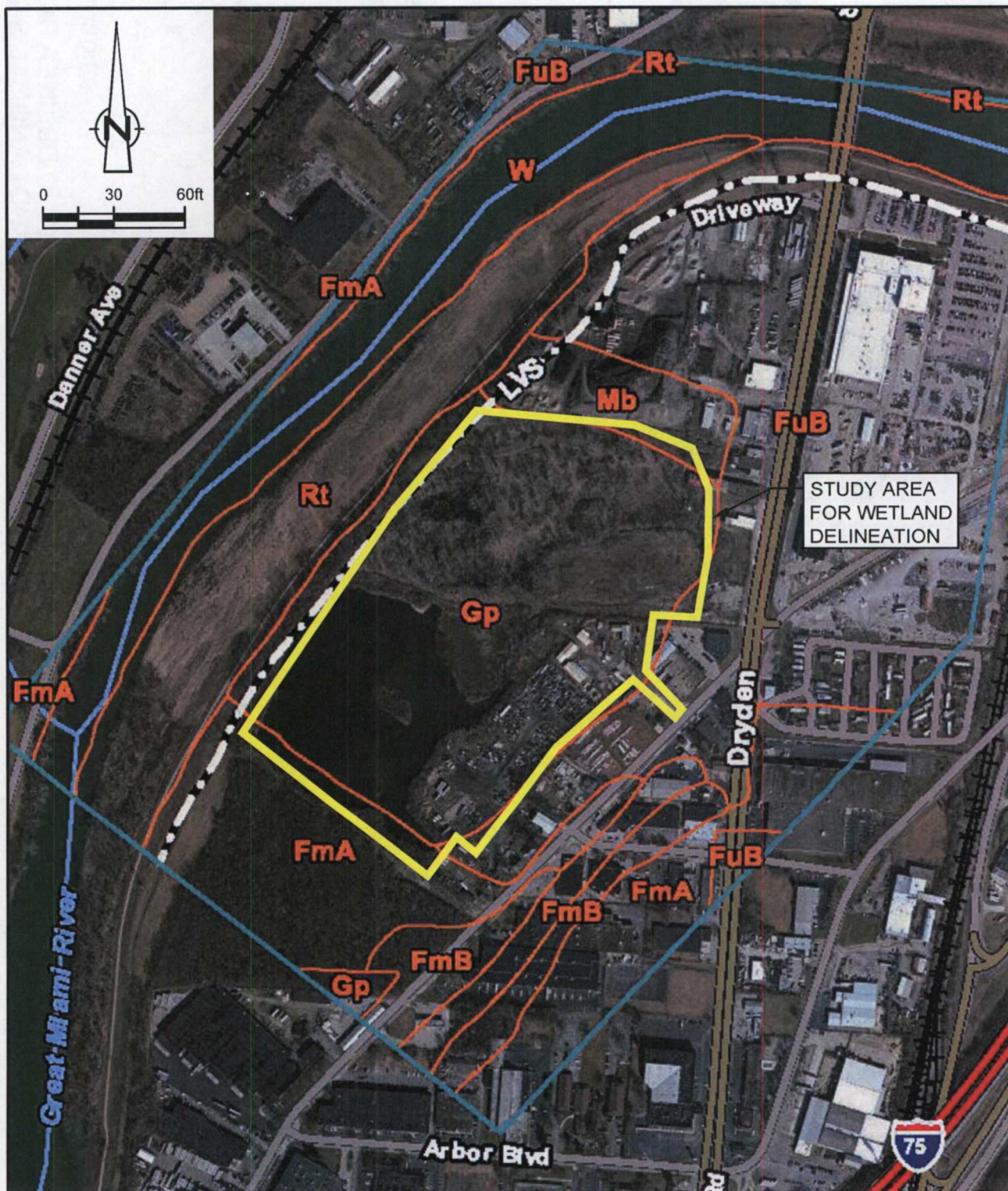


figure 2
SITE LIMITS AND LAYOUT
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio



SOURCES:
THE PAYNE FIRM, INC., PROJECT 0279.44.05, FIGURE 1, DATED 9/12/05;
TETRA TECH EM INC., PROJECT L0312006-SOUTH DAYTON DUMP, FIGURE 2, SITE LAYOUT, 05/25/2004;
CITY OF MORAINES
ABRAMS AERIAL SURVEY INC. PROJECT 38443, AASI 29610, 04/02/2008



SOURCE: WEB SOIL SURVEY NATIONAL COOPERATIVE SOIL SURVEY

figure 3

STUDY AREA FOR WETLAND DELINEATION
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio



Aug 20, 2013



Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

USER REMARKS:

PSS1C: PALUSTRINE, SCRUB-SHRUB, SEASONALLY FLOODED
 PUBGX: PALUSTRINE, UNCONSOLIDATED BOTTOM, EXCAVATED WETLAND
 R2UBH: RIVERINE, LOWER PERENNIAL
 PEM1F: PALUSTRINE, EMERGENT WETLAND

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

figure 4

STUDY AREA FOR WETLAND DELINEATION
 SOUTH DAYTON DUMP AND LANDFILL SITE
 Moraine, Ohio

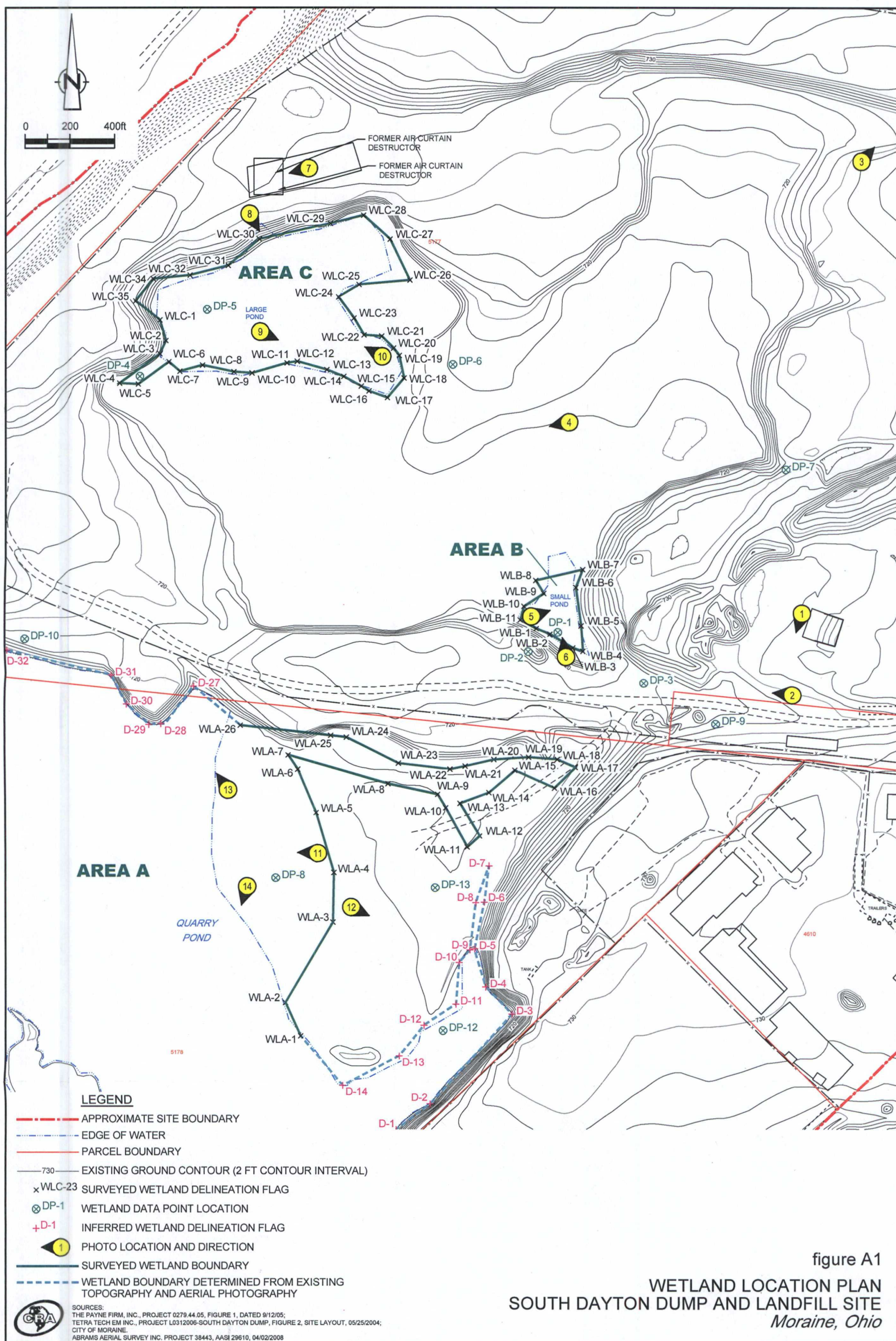


SOURCE: U.S. FISH AND WILDLIFE SERVICES - NATIONAL WETLANDS INVENTORY

38443-74(PATT001-EX)GN-WA002 OCT 31/2013

ATTACHMENT A

SITE PLAN



ATTACHMENT B

DATA FORMS